

## ABSTRACT OF THE DISCLOSURE

5       The human receptor H4-1BB has been isolated, sequenced  
and disclosed herein. The cDNA of the human receptor H4-  
1BB is about 65% homologous to the mouse cDNA 4-1BB and was  
isolated by using probes derived from cDNA 4-1BB. A fusion  
protein for detecting cell membrane ligands to human  
10 receptor protein H4-1BB was developed. It comprises the  
extracellular portion of the receptor protein H4-1BB and a  
detection protein (alkaline phosphatase) bound to the  
portion of the receptor protein H4-1BB. B-cells that have  
expressed a ligand to receptor protein H4-1BB can be  
15 treated with cells that have expressed receptor protein H4-  
1BB and B-cell proliferation may be induced. The use of  
H4-1BB to block H4-1BB ligand binding has practical  
application in the suppression of the immune system during  
organ transplantation. A monoclonal antibody against H4-  
20 1BB can be used to enhance T-cell proliferation by treating  
T-cells that have expressed receptor protein H4-1BB with  
the anti H4-1BB monoclonal antibody. Tumors transfected  
with H4-1BBL may be capable of delivering antigen-specific  
signals as well as the co-stimulatory signals and can be  
25 killed by human cytotoxic T lymphocytes.